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<b>EP-A- 0 287 177</b>	<b>DE-U- 9 107 799</b>
<b>FR-A- 2 662 431</b>	<b>US-A- 2 021 787</b>
<b>US-A- 3 031 359</b>	<b>US-A- 3 557 516</b>
<b>US-A- 3 964 235</b>	<b>US-A- 4 700 528</b>

## Description

**[0001]** The invention relates to a packaging unit comprising a mineral-wool product and a wrapping made of sheeting material, paper or the like, in particular in the form of a roll or a plate stack, with a carrying aid which is arranged on the outside of the packaging unit and beneath which the user can grip.

**[0002]** The commercially available packaging units for mineral-wool products are usually voluminous, for which reason they present problems for transportation by hand. It is usually the case that such packaging units have to be encircled and gripped using both arms in order to avoid the situation where the packaging units slide out as they are being carried, or the user has to grip the elastic sheeting-material packaging with both hands in order to be able to hold the mineral-wool product as it is being carried, although this, on the one hand, requires increased finger-gripping force and, on the other hand, can damage the sheeting-material packaging. In particular when a number of packaging units are transported one after the other, this thus involves relatively strenuous physical work for the user, which is the case, for example, if large-surface areas such as roofs etc. are to be insulated. Furthermore, such packaging units may also have a considerable weight of, for example, more than 15 kg, with the result that the unwieldiness has even more of a bearing as the units are transported.

**[0003]** For this purpose, EP 0 287 177 A1 has already disclosed a packaging unit in which a shrink wrapping is used for wrapping a rolled-up mineral-wool product, the roll itself having essential securing straps to prevent unrolling. The carrying aid provided here for transporting purposes is a carrying strap which is tensioned axially all the way round the packaging unit. This means that the carrying strap is not fixed to the packaging unit, with the result that a user can use his hand to grip beneath the carrying strap on all sides in order to pick up and carry the packaging unit.

**[0004]** However, such a carrying strap has the disadvantage that the packaging unit can slide out of the same, as a result of which the mineral-wool product may be damaged. In addition, a certain amount of outlay is then necessary in order to position the packaging unit reliably again in the encircling grip of the carrying strap. This problem arises, in particular, when the carrying strap is not picked up in the region of the center of gravity of the packaging unit. The non-uniform load distribution then results in different forces being introduced at the carrying strap on both sides of the user's hand, as a result of which a region of the carrying strap which is subjected to less loading can detach from the packaging unit. This known carrying aid thus requires careful handling by the user and is fault-prone. Under these circumstances, it is likewise difficult and time-consuming to transport a number of packaging units one after the other. This prior art has thus not gained acceptance in practice, especially since such carrying straps are too costly and they can also

easily get caught on obstructions.

**[0005]** Besides, there are packaging units for other products than mineral-wool products known. Document FR 2 662 431 shows for example a bobbin of a wound up thread, string or the like at which an encircling belt band serves to stabilize the bobbin even when the thread or the like has been already substantially pulled off so that the bobbin is substantially released. The carrying region of the belt band is exposed over the central opening of the bobbin.

**[0006]** The German utility model G 91 07 799 U1 discloses a packing drum of firing materials in shape of briquettes. A strip provided at the circumference of the packing drum has elastic deformable portions which are provided over the free spaces between the briquettes which are cylinder-shaped. A wrist strap is therefore given.

**[0007]** Document US 2,021,787 discloses a handle for carrying parcels wherein the handle projects essentially over the parcel to be carried.

**[0008]** The further document US 3,031,359 discloses a pressure sensitive adhesive tape handle construction. This adhesive tape will be attached to the package to be gripped by attaching an uncovered adhering surface under pressure to the package. In this manner, a carrying region can be provided.

**[0009]** Document WO 93/21078 discloses a mineral wool package comprising one or more mineral wool products and a wrapping of plastics having an area comprising two overlapping interconnected film portions. A carrying means is attached to the exterior side of the wrapping within said area. The carrying means is provided as a strip which is fastened to the film wrapping e. g. by hot welding. At least one open zone is provided which may be used as a handle or a carrying grip. The carrying means may be designed that it abuts the package surface closely and thus does not prevent close stacking of packages of both wound-up mineral fibre webs and stacks of mineral fibre boards. In an alternative embodiment, the carry means may be produced from a comparatively strong film provided with an overlapping portion and having an opening which serves as a carrying grip.

**[0010]** The object of the present invention is thus to provide a packaging unit comprising a mineral-wool product which has a cost-effective carrying aid, which is suitable to mass-production and can be handled reliably, in order that the user can transport the mineral-wool product easily and without any particular instruction.

**[0011]** This object is achieved by a packaging unit with the features of claim 1, and in particular by the development of the packaging unit of the generic type having the features that the carrying aid used is a strip which is connected to the outside of the wrapping by adhesive bonding or sealing, the connection being interrupted in at least one carrying region beneath which the user can grip.

**[0012]** Furthermore, since the packaging unit is designed such that the at least one carrying region butts tightly against the outside of the packaging unit, but beneath which the user can grip, it is possible for the special

material properties of the mineral-wool product, namely the elasticity thereof, to be utilized particularly advantageously. In this case, it has been found according to the invention that the elasticity of the mineral wool makes it possible for that region of the strip which does not have adhesive bonding to butt closely against the outside of the product when not in use, as a result of which there is no point of attachment by which the packaging unit could get caught as it is being produced or transported. At the same time, however, the elasticity of the mineral wool allows the user to grip beneath said carrying region without having to apply any considerable force for this purpose and without the carrying comfort being restricted.

**[0013]** The packaging unit according to the invention can thus easily be reliably held and picked up by the user in order then to be transported by hand to the desired destination. For this purpose, the at least one carrying region may be arranged specifically at a particularly suitable point, with the result that the situation where the user picks up the packaging unit at a point which is unfavorable, in particular, in terms of weight distribution is reliably avoided. This simplifies handling, and reduces physical exertion, to a considerable extent.

**[0014]** Furthermore, this means that it is also possible for the first time to transport voluminous or bulky and/or relatively heavy packaging units by hand with little effort and without using any further auxiliary means. The use of bonding of the carrying strip on the outside of the wrapping gives the considerable advantage here that slipping of the packaging unit in, or even out of, the carrying aid is not possible. It is thus also possible, for example, for a large-volume packaging unit which, on account of its dimensions, cannot be gripped rectilinearly from above, to be reliably picked up obliquely from one side without there being any risk of the packaging unit sliding out.

**[0015]** The amount of care necessary for the carrying operation according to the invention is thus considerably less than in the prior art, without the risk of damage to the mineral-wool product by incorrect handling increasing. This makes it possible, by using the invention, for considerably more packaging units to be transported over a certain period of time than was the case with the demonstrated prior art.

**[0016]** It is further advantageous that a packaging unit according to the invention can also be easily transported on one's shoulder since the carrying region allows reliable securing.

**[0017]** Furthermore, the carrying aid according to the invention is particularly suitable for packaging units which are mass-produced because, on the one hand, according to the invention, considerable parts of the strip provided for carrying purposes are fixed on the packaging unit by adhesive bonding or sealing, with the result that overhanging parts are avoided and the risk of the packaging unit getting caught within a production line by way of a carrying region is very low, and, on the other hand, the operation of attaching the carrying aid can be automated.

**[0018]** The packaging unit according to the invention is first distinguished in that it can be prepared easily and reliably and handled reliably and, in addition, it can easily be lifted, secured and carried by hand and can be better manipulated at the destination.

**[0019]** Advantageous developments of the invention can be gathered from the features of the subclaims.

**[0020]** Since the strip provided for carrying purposes is provided on one side throughout with adhesive, a covering for the adhesive being arranged on the at least one carrying region, the strip adheres over its surface area to the sheeting-material packaging, with the result that, as a strip is subjected to loading during carrying, the forces act uniformly on the packaging sheeting material without damaging it, i. e. on the non-covered regions, the adhesive interacts directly with the sheeting-material wrapping of the packaging unit and thus ensures reliable connection and therefore uniform dissipation of load to the same. If, on the other hand, the ends of the strip are connected to one another in an overlapping manner on the sheeting-material wrapping, then, rather than the sheeting-material wrapping being essentially subjected to any carrying force, the strip forms a closed strap and thus a self-contained unit. Furthermore, the carrying region is provided by the covering at desired points, it being possible for the covering to serve here additionally as reinforcement for the carrying strip in this region. This improves the handling of the packaging unit to a not inconsiderable extent, i.e. the carrying region thus provides a better grip for the hand gripping beneath it.

**[0021]** It is further advantageous if the covering has such a rigidity that, in particular during carrying, undesired constriction of the strip in the carrying region is essentially avoided. This makes it possible for the packaging unit to be comfortably picked up at the carrying region since, as a result, rather than being concentrated on one or more folds of the carrying region, the load of the packaging unit is thus distributed essentially over the entire length of the strip, beneath which the hand grips, and therefore over a considerable area of the surface of the hand, as a result of which the packaging unit can be transported even more comfortably.

**[0022]** If the at least one carrying region has a length of from 10 to 30 cm, preferably 20 cm, and a width of from 2 to 8 cm, preferably 3 cm, the user's hand can have a comfortable grip. Furthermore, the width of the carrying region here is selected such that it assumes a good position in the hand.

**[0023]** It is particularly advantageous if two diametrically arranged carrying regions are provided because it is then possible for the user to grip the most appropriate carrying region for him without it being necessary for the packaging unit to be rolled over to any great extent. In addition, it is also possible for the packaging unit to be transported by two people, one person in each case gripping one of the carrying regions. In a configuration of the carrying regions for carrying in the manner of a rucksack, the formation of two carrying regions in any case makes

it possible for the packaging unit to be carried on the user's back in a reliable manner such that it is held on both sides.

**[0024]** It is further advantageous if the strip is designed more or less in one piece, i. e. such that it runs all the way round and overlaps. This simplifies the preparation and attachment of the carrying strip on the packaging unit to a considerable extent because it allows mass-production automation.

**[0025]** Since, during use, the at least one carrying region comes to rest over the center of gravity of the packaging unit or symmetrically thereto, the task of transporting the packaging unit is simplified further. In particular, it is thus possible to avoid the occurrence of non-uniform load distribution and the user does not have to keep his balance.

**[0026]** The invention is explained in more detail hereinbelow in exemplary embodiments with reference to a figure of the drawing, wherein

Figure 1 shows a perspective illustration of a first embodiment of the packaging unit according to the invention, with an overlapping carrying strip running all the way round transversely to the main axis.

**[0027]** Figure 1 illustrates an embodiment of the packaging unit 1. The latter has a roll 2 made of mineral wool which is enclosed by a wrapping 3 made of a plastic sheeting material. Furthermore, a carrying strip 4 arranged over the wrapping 3 is wrapped all the way round the roll 2. Said carrying strip preferably consists of polypropylene and has a thickness of 80  $\mu\text{m}$ . However, other plastics such as polyethylene or polyester are also suitable for the strips, it being possible for the sheeting-material thickness for the strips to be between 50 and 100  $\mu\text{m}$ .

**[0028]** In this case, the carrying strip 4 is designed as a type of single-sided adhesive tape and encircles the sheeting-material wrapping 3 of the roll 2 such that the ends of the carrying strip 4 overlap one another. The overlapping arrangement also has, in particular, production-related advantages, which make it possible for the subsequent attachment of the carrying strip to be automated. In addition, the carrying strip 4 is arranged centrally in the direction of the main axis of the roll 2, with the result that the center of gravity of the packaging unit is within the region enclosed by the carrying strip 4. The adhesive provided here is an acrylate, and rubber would also be suitable for this purpose. In the case of the carrying strip being fastened on the sheeting-material wrapping by sealing, the adhesive has to be activated first of all by heating.

**[0029]** Furthermore, arranged at two diametrical points on the adhesive side of the carrying strips 4 is a covering (not illustrated specifically) having a length of 20 cm and a width, corresponding to the carrying strip 4, of 3 cm, such that there are mutually opposite carrying regions 41 which are not adhesively bonded to the sheeting-ma-

terial wrapping 3. Of the two carrying regions 41, only the one which can be seen at the front is shown in Figure 1. It is thus possible for a user to grip this carrying region, and transport the packaging unit 1, with one hand, or he has to rotate the packaging unit briefly in order to get the other carrying region. In Figure 1 and also in the rest of the figures, the carrying region 41 is illustrated such that it protrudes to an exaggerated extent, in order for the facts to be elucidated. In these embodiments, the carrying regions actually butt tightly in each case against the outside of the wrapping 3 or against the mineral-wool product.

**[0030]** The covering (not illustrated in detail here) on the carrying region 41 of the carrying strip 4 may also be formed, for example, as a foam strip, which improves the carrying comfort. As far as the stability and/or rigidity of the carrying strip 4 in this region is concerned, on the other hand, said stability and/or rigidity can be increased by a PE sheeting-material strip having a thickness of between 50 and 60  $\mu\text{m}$  being used as the covering. Furthermore, such a covering may also have a company logo printed on it.

**[0031]** In the rest state illustrated in Figure 1, i. e. when the packaging unit 1 is not being transported, the carrying strip 4, on account of the elasticity of the roll material, butts closely against the sheeting-material wrapping 3 by way of the carrying regions 41 such that said strip does not protrude therefrom in practice and thus does not form many attachment surface to cause problems during production and other instances of manipulation.

**[0032]** The carrying strip 4 is attached to the sheeting-material or paper wrapping 3 in a manner which is suitable for mass production, to be precise first of all the roll 2 is produced in a so-called winding machine and then provided with the sheeting-material wrapping 3. Thereafter, the roll 2 is positioned and has the carrying strip 4 wrapped round its center so that the two ends of the carrying strip overlap. Alternatively, it is also possible for the roll 2 to be rotated such that the carrying strip 4 is secured all the way round.

**[0033]** The invention allows further design concepts in addition to the embodiments demonstrated here.

**[0034]** It is also possible for a plurality of carrying aids according to the invention to be arranged, in particular, at uniform spacings from the center of gravity in order to allow the latter to be picked up with both hands with symmetrical load distribution.

**[0035]** In addition, it is also possible for the carrying, strip 4 to be made of a textile strap. It is also possible for such strips 4 to be attached to the sheeting material wrapping 3 by heat sealing or by an adhesive which is applied separately to the desired points. It is then possible to dispense with the provision of a covering for producing the carrying regions.

**[0036]** Furthermore, the carrying aid 4 may be produced from a single piece or else may be formed by the arrangement of a plurality of individual strips for configuring the carrying regions 41.

**[0037]** As can be seen from the various embodiments, it is possible for the number and alignment of the carrying regions to be selected as desired and adapted to the respective requirements.

**[0038]** The effective length of the carrying region may be provided as desired, it being the case here that account should be taken of the respective application case, e. g. whether the packaging unit 1 is picked up with one hand or both hands.

**[0039]** Furthermore, the carrying region 41 may be colored such that it can be immediately recognized as such.

**[0040]** The invention thus provides a packaging unit 1 in the case of which a strip 4 is attached, as carrying aid, to a packaging sheeting material 3 so as to form at certain points, or all the way round, carrying regions 41 which are not connected to the packaging sheeting material 3. The user can use his hand to grip these carrying regions 41 such that the packaging unit 1 can be easily lifted and carried.

## Claims

1. A packaging unit (1) comprising a mineral-wool product and a wrapping (3) made of sheeting material, paper or the like, in the form of a roll, with a carrying aid which is a strip arranged on the outside of the packaging unit (1) and beneath which the user can grip, wherein the strip (4) is connected to the outside of the wrapping (3) by adhesive bonding or sealing, and wherein the connection being interrupted in at least one carrying region (41), arranged specifically at a particularly suitable point, which butts tightly against the outside of the wrapping (3), but beneath which the user can grip because of the elasticity properties of the mineral wool,  
**characterized in that**  
the strip (4) encircles the entire packaging unit (1) so that it runs all the way around transversely to a main axis thereof, with the ends of the strip (4) being connected to one another in an overlapping manner.
2. The packaging unit as claimed in claim 1, **characterized in that** the strip (4) is provided on one side throughout with adhesive, as covering for the adhesive being arranged on the carrying region (41), beneath which the user can grip.
3. The packaging unit as claimed in claim 2, **characterized in that** the covering has such a rigidity that, in particular during carrying, undesired constriction of the strip (4) in the carrying region (41) is essentially avoided.
4. The packaging unit as claimed in one of claims 1 to 3, **characterized in that** the at least one carrying

region (41) has a length of from 10 to 30 cm, preferably 20 cm, and a width from 2.0 to 8.0 cm, preferably 3 cm.

5. The packaging unit as claimed in one of claims 1 to 4, **characterized in that** two diametrically arranged carrying regions are provided.
6. The packaging unit as claimed in one of claims 1 to 10, **characterized in that** the strip (4) is formed by a sheeting material which preferably consists of polyethylene, polyester or polypropylene and has a thickness of from 50 to 100 µm.
15. The packaging unit as claimed in one of claims 1 to 6, **characterized in that** the adhesive used for the strip (4) is an acrylate or rubber.
20. The packaging unit as claimed in one of claims 1 to 7, **characterized in that** the at least one carrying region (41) is colored or a covering therefor has a printed logo so that it can be immediately recognized as such.

## Patentansprüche

1. Verpackungseinheit (1) in der Form einer Rolle, ein Mineralwolleprodukt und eine Umhüllung (3) aus Folie, Papier o. ä. aufweisend, mit einer Traghilfe, bei der es sich um einen an der Außenseite der Verpackungseinheit (1) angeordneten Streifen handelt, der ein Untergreifen durch den Benutzer ermöglicht, wobei der Streifen (4) durch Klebung oder Siegelung mit der Außenseite der Umhüllung (3) verbunden ist, und  
wobei die Verbindung in wenigstens einem Tragbereich (41) unterbrochen ist, der gezielt an einer besonders geeigneten Stelle angeordnet ist und straff an der Außenseite der Umhüllung (3) anliegt, dabei jedoch aufgrund der Elastizitätseigenschaften der Mineralwolle durch den Benutzer untergriffen werden kann,  
**dadurch gekennzeichnet, dass**  
der Streifen (4) die gesamte Verpackungseinheit (1) umgibt, so dass er quer zu ihrer Hauptachse ganz um sie herumläuft, wobei die Enden des Streifens (49) auf überlappende Weise miteinander verbunden sind.
2. Verpackungseinheit nach Anspruch 1, **dadurch gekennzeichnet, dass** der Streifen (4) auf einer Seite durchgehend mit Klebstoff versehen ist, wobei an dem zum Untergreifen vorgesehenen Tragbereich (41) eine Abdeckung für den Klebstoff angeordnet ist.
3. Verpackungseinheit nach Anspruch 2, **dadurch gekennzeichnet, dass** der Streifen (4) auf einer Seite

**kennzeichnet, dass** die Abdeckung eine derartige Steifigkeit aufweist, dass insbesondere beim Tragen ein unerwünschtes Einschnüren des Streifens (4) im Tragbereich (41) im Wesentlichen vermieden wird.

4. Verpackungseinheit nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** der wenigstens eine Tragbereich (41) eine Länge von 10 bis 30 cm, vorzugsweise 20 cm, und eine Breite von 2,0 bis 8,0 cm, vorzugsweise 3 cm, aufweist.
5. Verpackungseinheit nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** zwei diametral angeordnete Tragbereiche vorgesehen sind.
6. Verpackungseinheit nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** der Streifen (4) durch ein Folienmaterial gebildet ist, das vorzugsweise aus Polyethylen, Polyester oder Polypropylen besteht und eine Dicke von 50 bis 100 µm aufweist.
7. Verpackungseinheit nach einem der Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** als Klebstoff für den Streifen (4) ein Acrylat oder Kautschuk dient.
8. Verpackungseinheit nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** der wenigstens eine Tragbereich (41) farblich gestaltet ist oder eine Abdeckung dafür ein gedrucktes Logo aufweist, so dass er sofort als solcher erkennbar ist.

### Revendications

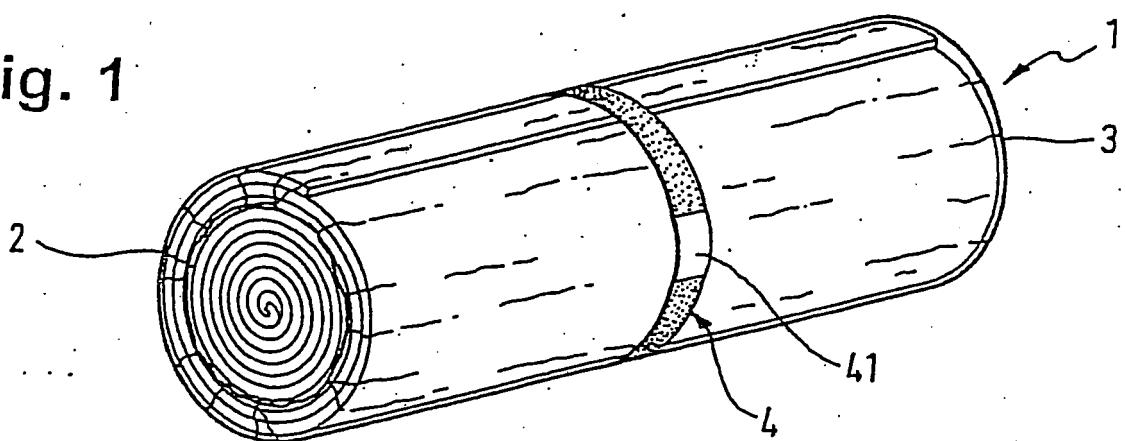
1. Unité d'emballage (1) comprenant un produit en laine minérale et un emballage (3) réalisé avec un matériau en feuille, du papier ou similaire, se présentant sous la forme d'un rouleau, avec une aide de transport qui est une bande agencée sur l'extérieur de l'unité d'emballage (1) et sous laquelle l'utilisateur peut la saisir, dans laquelle la bande (4) est raccordée à l'extérieur de l'emballage (3) par un collage adhésif ou un scellement, et dans laquelle le raccordement est interrompu au moins dans la région de transport (41) agencée spécifiquement à un point particulièrement approprié, qui vient en butée de manière serrée contre l'extérieur de l'emballage (3), mais sous laquelle l'utilisateur peut la saisir en raison des propriétés élastiques de la laine minérale, **caractérisée en ce que :**

la bande (4) encercle toute l'unité d'emballage (1) de sorte qu'elle s'étend tout autour de son axe principal de manière transversale, avec les extrémités de la bande (4) qui sont raccordées entre elles d'une manière chevauchante.

2. Unité d'emballage selon la revendication 1, **caractérisée en ce que** la bande (4) est prévue sur un côté partout avec de l'adhésif, un recouvrement pour l'adhésif étant agencé sur la région de transport (41), sous laquelle l'utilisateur peut la saisir.
3. Unité d'emballage selon la revendication 2, **caractérisée en ce que** le recouvrement a une rigidité de sorte que, en particulier pendant le transport, le pinçement indésirable de la bande (4) dans la région de transport (41) est essentiellement évité.
4. Unité d'emballage selon l'une quelconque des revendications 1 à 3, **caractérisée en ce que** la au moins une région de transport (41) a une longueur allant de 10 à 30 cm, de préférence 20 cm et une largeur allant de 2,0 à 8,0 cm, de préférence 3 cm.
5. Unité d'emballage selon l'une quelconque des revendications 1 à 4, **caractérisée en ce que** l'on prévoit deux régions de transport agencées de manière diamétrale.
6. Unité d'emballage selon l'une quelconque des revendications 1 à 5, **caractérisée en ce que** la bande (4) est formée par un matériau en feuille qui se compose de préférence de polyéthylène, de polyester ou de polypropylène et a une épaisseur allant de 50 à 100 µm.
7. Unité d'emballage selon l'une quelconque des revendications 1 à 6, **caractérisée en ce que** l'adhésif utilisé pour la bande (4) est un acrylate ou du caoutchouc.

8. Unité d'emballage selon l'une quelconque des revendications 1 à 7, **caractérisée en ce que** ladite au moins une région de transport (41) est colorée ou qu'un recouvrement pour celle-ci a un logo imprimé de sorte qu'il peut être immédiatement reconnu en tant que tel.

Fig. 1



**REFERENCES CITED IN THE DESCRIPTION**

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- FR 2662431 [0005]
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